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STORY OF GRISELL COCHRANE.

THE Cochranes are an old family in Scotland. They rose to distinction in the fifteenth century, and have always been remarkable for courage and ingenuity. Sir William Cochrane was elevated to the peerage as Baron Cochrane in 1647, and advanced to the dignity of Earl of Dundonald in 1669. His grandson was Sir John Cochrane of Ochiltree, who, along with Sir Patrick Hume of Polwarth, was concerned in the political troubles which, in the reign of James II., brought ruin on the Stewart dynasty. While Hume was so fortunate as to escape abroad, Cochrane was taken prisoner in the rising under the Earl of Argyll, and, being conducted to Edinburgh, was ignominiously lodged in the Tolbooth, on the 3d July 1685, there to await his trial as a traitor. The day of trial came, and, as a matter of course, he was condemned to death.

Sir John Cochrane was married, and had a family of several sons, and at least one daughter, Grisell. This young lady, who was about eighteen years of age, emulated in courage and resources Grisell Hume, whose story, under her married name of Lady Grisell Baillie, has lately been told in these pages. Living at the same period, it is not unlikely that they were acquainted with each other. In their heroic efforts, there was, at all events, a remarkable similarity, for each exerted herself in no ordinary manner to save the life of her father.

While lying under sentence of death in that gloomy Tolbooth, Sir John Cochrane was permitted to see members of his family. Afraid, however, of implicating his sons, he forbade them to visit him until they could take a last farewell on the night previous to his execution. His daughter, however, was allowed to come as often and stay with him as long as she pleased. The chief subject of their conversation was an appeal made to the king for mercy. Although several friends interested themselves in trying to procure a remission of the sentence, there were no sanguine expectations that they would be successful. As the time wore on, Grisell's fears increased in intensity; and, without explaining herself to

any one, she resolved to make a bold attempt to postpone her father's fate, if not to save him. A short time before the death-warrant was expected by the privy-council in Edinburgh, she mentioned to her father that some urgent affair would prevent her from seeing him again for a few days. Alarmed at this, and penetrating her design of effecting some hazardous project in his favour, he warned her against any rash enterprise. Her answer was brief and emphatic: 'I am a Cochrane;' and so tenderly bidding him adieu, she departed to perform an extraordinary exploit as ever fell to the lot of a young and daring female.

Next morning, long ere the inhabitants were astir, Grisell was some miles on her road to the Borders. She had attired herself as a young serving-woman, journeying on a borrowed horse to the house of her mother. So equipped and well mounted, she on the second day reached in safety the abode of her old nurse, who lived on the English side of the Tweed, four miles beyond the town of Berwick. In this woman she knew she could place implicit confidence, and to her, therefore, she revealed her secret. She had resolved, she said, to make an attempt to save her father's life, by stopping the postman, an equestrian like herself, and forcing him to deliver up his bags, in which she expected to find the fatal warrant. Singular as such a determination may appear in a delicate young woman, especially if we consider that she was aware of the arms always carried by the man to whose charge the mail was committed, it is nevertheless an undoubted fact that such was her resolution. In pursuance of this design, she had brought with her a brace of small pistols, together with a horseman's cloak, tied up in a bundle, and hung on the crutch of her saddle; and now borrowed from her nurse the attire of her foster-brother, which, as he was a slight-made lad, fitted her reasonably well.

At that period, all those appliances which at this day accelerate the progress of the traveller were unknown, and the mail from London, which now arrives in less than twelve hours, took eight days in reaching the Scottish capital. Miss Cochrane

thus calculated on a delay of sixteen or seventeen days in the execution of her father's sentence—a space of time which she deemed amply sufficient to give a fair trial to the treaty set on foot for his liberation. She had, by means which it is unnecessary here to detail, possessed herself of the most minute information with regard to the places at which the postmen rested on their journey, one of which was a small public-house, kept by a widow, on the outskirts of the little town of Belford. There the man who received the bag at Durham was accustomed to arrive about six o'clock in the morning, and take a few hours' repose before proceeding farther on his journey. In pursuance of the plan laid down by Miss Cochran, she arrived at this inn about an hour after the man had composed himself to sleep, in the hope of being able, by the exercise of her wit and dexterity, to ease him of his charge.

Having put her horse into the stable—which was a duty that devolved on the guests at this little public-house, from its mistress having no hostler—she entered the only apartment which the house afforded, and demanded some refreshment. 'Sit down at the end of that table,' said the old woman, 'for the best I have to give you is there already; and be pleased, my bonny man, to make as little noise as you can, for there's a ne asleep in that bed that I like ill to disturb.' Miss Cochran promised fairly; and after attempting to eat some of the viands, which were the remains of the sleeping man's meal, she asked for some cold water.

'What!' said the old dame, as she handed it to her, 'ye are a water-drinker, are ye? It's but an ill custom for a change-house.'

'I am aware of that,' replied her guest, 'and therefore, when in a public-house, always pay for it the price of the stronger potation, which I cannot take.'

'Indeed—well, that is but just,' responded the dame; 'and I think the more of you for such reasonable conduct.'

'Is the well where you get this water near at hand?' said the young lady; 'for if you will take the trouble to bring me some from it, as this is rather tepid, it shall be considered in the reckoning.'

'It is a good bit off,' said the woman; 'but I cannot refuse to fetch some for such a civil discreet lad, and will be as quick as I can. But, for any sake, take care and don't meddle with these pistols,' she continued, pointing to a pair of pistols on the table, 'for they are loaded, and I am always terrified for them.'

Saying this, she disappeared; and Miss Cochran, who would have contrived some other errand for her, had the well been near, no sooner saw the door shut than she passed, with trembling eagerness, and a cautious but rapid step, across the floor to the place where the man lay soundly sleeping, in one of those close wooden bedsteads common in the houses of the poor, the door of which was left half open to admit the air, and which she opened still

wider, in the hope of seeing the mail-bag, and being able to seize upon it. But what was her dismay when she beheld only a part of the integument which contained what she would have sacrificed her life a thousand times to obtain, just peeping out from below the shaggy head and brawny shoulders of its keeper, who lay in such a position upon it as to give not the smallest hope of its extraction without his being aroused from his nap! A few bitter moments of observation served to convince her that, if she obtained possession of this treasure, it must be in some other way; and again closing the door of the bed, she approached the pistols, and having taken them one by one from the holsters, she as quickly as possible drew out their loading, which having secreted, she returned them to their cases, and resumed her seat at the foot of the table. Here she had barely time to recover from the agitation into which the fear of the man's awaking during her recent occupation had thrown her, when the old woman returned with the water; and having taken a draught, of which she stood much in need, she settled her account much to her landlady's content, by paying for the water the price of a pot of beer. Having then carelessly asked and ascertained how much longer the other guest was likely to continue his sleep, she left the house, and mounting her horse, she set off at a trot in a different direction from that in which she had arrived.

Making a circuit of two or three miles, she once more fell into the high-road between Belford and Berwick, where she walked her horse gently on, awaiting the coming up of the postman. Though all her faculties were now absorbed in one aim, and the thought of her father's deliverance still reigned supreme in her mind, she could not help occasionally figuring to herself the possibility of her tampering with the pistols being discovered, and their loading replaced, in which case it was more than likely that her life would be the forfeit of the act she meditated. A woman's fears would still intrude, notwithstanding all her heroism, and the glorious issue which promised to attend the success of her enterprise. When she at length saw and heard the postman advancing behind her, the strong necessity of the case gave her renewed courage; and it was with perfect coolness that, on his coming close up, she civilly saluted him, put her horse into the same pace with his, and rode on for some way in his company. He was a strong thick-set fellow, with a good-humoured countenance, which did not seem to Miss Cochran, as she looked anxiously upon it, to savour much of hardy daring. He rode with the mail-bags strapped firmly to his saddle in front, close to the holsters (for there were two), one containing the letters direct from London, and the other those taken up at the different post-offices on the road. After riding a short distance together, Miss Cochran deemed it time, as they were nearly half-way between Belford and Berwick, to commence her operations. She therefore rode nearly close to her

companion, and said, in a tone of determination: 'Friend, I have taken a fancy for those mail-bags of yours, and I must have them; therefore, take my advice, and deliver them up quietly, for I am provided for all hazards. I am mounted, as you see, on a fleet steed; I carry firearms; and moreover, am allied with those who are stronger, though not bolder than myself. You see yonder wood,' she continued, pointing to one at the distance of about a mile, with an accent and air meant to carry intimidation. 'Again, I say, take my advice; give me the bags, and speed back the road you came for the present, nor dare to approach that wood for at least two or three hours to come.'

There was in such language from a stripling something so surprising, that the man looked on Miss Cochrane for an instant in silent and unfeigned amazement. 'If,' said he, as soon as he found his tongue, 'you mean, my young master, to make yourself merry at my expense, you are welcome. I am no sour churl to take offence at the idle words of a foolish boy. But if,' he said, taking one of his pistols from the holster, and turning its muzzle towards her, 'you are mad enough to harbour one serious thought of such a matter, I am ready for you. But, methinks, my lad, you seem at an age when robbing a garden or an old woman's fruit stall would befitt you better, if you must turn thief, than taking his majesty's mails from a stout man such as I am upon his highway. Be thankful, however, that you have met with one who will not shed blood if he can help it, and sheer off before you provoke me to fire.'

'Nay,' said his young antagonist, 'I am not fonder of bloodshed than you are; but if you will not be persuaded, what can I do? For I have told you a truth—that mail I must and will have. So now choose,' she continued, as she drew one of the small pistols from under her cloak, and deliberately cocking it, presented it in his face.

'Nay, then, your blood be on your own head,' said the fellow, as he raised his hand and fired his pistol, which, however, only flashed in the pan. Dashing the weapon to the ground, he lost not a moment in pulling out the other, which he also aimed at his assailant, and fired with the same result. In a transport of rage and disappointment, the man sprang from his horse, and made an attempt to seize her; but, by an adroit use of her spurs, she eluded his grasp, and placed herself out of his reach. Meanwhile, his horse had moved forward some yards, and to see and seize the advantage presented by this circumstance was one and the same to the heroic girl, who, darting towards it, caught the bridle, and having led her prize off about a hundred yards, stopped while she called to the thunderstruck postman to remind him of her advice about the wood. She then put both horses to their speed, and on turning to look at the man she had robbed, had the pleasure of perceiving that her mysterious threat had taken effect, and he was now pursuing his way back to Belford.

Miss Cochrane speedily entered the wood to which she had alluded, and tying the strange

horse to a tree, out of all observation from the road, proceeded to unfasten the straps of the mail. By means of a sharp penknife, which set at defiance the appended locks, she was soon mistress of the contents, and with an eager hand broke open the government despatches, which were unerringly pointed out to her by their address to the Council in Edinburgh, and their imposing weight and broad seals of office. Here she found not only the fatal warrant for her father's death, but also many other sentences inflicting different degrees of punishment on various delinquents. These, however, it may readily be supposed, she did not then stop to examine: she contented herself with tearing them into small fragments, and placing them carefully in her bosom.

The intrepid girl now mounted her steed, and rode off, leaving all the private papers where she had found them, imagining (what eventually proved the case) that they would be discovered ere long, from the hints she had thrown out about the wood, and thus reach their proper places of destination. She now made all haste to reach the cottage of her nurse, where, having committed to the flames not only the fragments of the dreaded warrant, but also the other obnoxious papers, she quickly resumed her female garments, and was again, after this manly and daring action, the simple and unassuming Miss Grisell Cochrane. Leaving the cloak and pistols behind her, to be concealed by her nurse, she again mounted her horse, and directed her flight towards Edinburgh, and, by avoiding as much as possible the high-road, and resting at sequestered cottages, as she had done before, and that only twice for a couple of hours each time, she reached town early in the morning of the next day.

It must now suffice to say, that the time gained by the heroic act related above was productive of the end for which it was undertaken, and that Sir John Cochrane was pardoned, at the instigation of the king's favourite counsellor, who interceded for him in consequence of receiving a bribe of five thousand pounds from the Earl of Dundonald. Of the feelings which on this occasion filled the heart of his courageous and devoted daughter, we cannot speak in adequate terms; and it is perhaps best, at any rate, to leave them to the imagination of the reader. The state of the times was not such for several years as to make it prudent that her adventure should be publicly known; but after the Revolution, when the country was at length relieved from persecution and danger, and every man was at liberty to speak of the trials he had undergone, and the expedients by which he had mastered them, her heroism was neither unknown nor unapproved. Miss Cochrane afterwards married Mr Ker of Morriston, in the county of Berwick; and there can be little doubt that she proved equally affectionate and amiable as a wife, as she had already been dutiful and devoted as a daughter. Sir John Cochrane succeeded as second Earl of Dundonald.

The foregoing storiette, which we have condensed mainly from an historical tradition by the late Dr R. Chambers, may possibly suggest, as in the case of Lady Grisell Baillie, that young ladies in the seventeenth century must have excelled those of the nineteenth in heroic ardour. We doubt not, however, that under the pressure of circumstances, there are many young females of

the present day, who, though tenderly nurtured, would be animated by a heroism in facing danger quite equal to that shewn by their predecessors centuries ago.

W. C.

A WORD ON HEAT AND LIGHT.

IN our northern climate, cold is the predominant enemy. It is what all contend against at such cost as individual means can afford. To stave off this fell enemy of health and comfort, what efforts will not be employed. To secure a proper quantity of artificial heat, is a matter of universal effort during the inclemency of winter and spring. People huddle together, and very nearly stifle themselves for the sake of heat. In fact, the necessity for heat is the cause of much of what we usually call the insanitary condition of dwellings. The sensation of cold is what all detest, and hence not a little of the overcrowding of houses of which we hear so much.

Our need of artificial heat increases in proportion to the stage of national civilisation to which we have attained. There are races, indeed, to whom Nature has denied fuel, or to whom it has, more accurately, been conceded to so scanty an extent that, except for cooking purposes, none can be employed. To this category belong the natives of Tibet, in spite of the rigours of their terrible climate, the Icelanders, the Esquimaux, and the nomads of the extreme north of Asia. There are others who, like the Guachos of South America, are well-nigh too indolent to kindle a fire, and who prefer a meal on thin slices of sun-dried beef to any food which could not be prepared without some trouble and attention. But even the remote negro nations of the interior of Africa are skilful in metallurgy; and the same may be said of the wild dwellers beneath the black tents of Mongolia, Turcomania, and Chinese Turkestan, to whom every root and thorny shrub that can feed the blacksmith's forge-fire, or supply the brazier of the jeweller, is valuable. Wood, indeed, the most ancient and general form of fuel, is probably the part of mankind's inheritance which has been the most wantonly dissipated. We are suffering now from the wastefulness of bygone generations, careless trustees of those forests on which depends the rainfall of a country no less than its store of firewood. Even North America is now beginning, in common with India, Greece, and Gaul, to deplore the reckless denudation of enormous tracts, once well timbered, but now condemned to sterility. Wood, in civilised regions, has become the dearest of all varieties of fuel, even for domestic use. Nor is this wonderful when we remember its weight and bulk, the severe labour attendant on its cutting and its transport, and its relatively low heating power. This last is but one-half that of coal, coke, or vegetable charcoal, which three varieties of carbon give an amount of heat that, for practical purposes, is nearly identical; while peat itself, an immature form of coal, has but one-fifth of the heat-producing force that is latent in the mineral for which, in some districts, it is a substitute.

If we want a moderate degree of heat, it is provided in the domestic fireplace, which will, at its hottest, whiten iron and melt thin sheets of silver. To melt gold, iron, or any of the more refractory metals, the heat of a blacksmith's forge, stimulated by its monstrous bellows, has to do its best, nor is the operation certain. For the fusion of Bessemer steel, or for the bringing into a pasty condition of the massive armour-plates to be rolled out into breast-plates for those Goliaths of the deep, our war-ships, hot-air furnaces of Titanic power, devouring tons of coal with Gargantuan appetite, and driving back intruders with flaming breath and lurid glow from their fiery jaws, have to be erected. Yet a chemist, in his quiet laboratory, disposes, on a small scale, of powers that far surpass those of the hugest artificial volcano that ever roared, lionlike, for prey in the shape of bars and ingots of malleable iron. His gas-furnace, his air-furnace, emulate the fiercest effects of the iron-founder's cavernous kilns. He turns a tap or two, and lo! platinum, rhodium, and other metals pronounced infusible in all old text-books, are as fluid as melted sealing-wax at the touch of the burning gases that feed the oxy-hydrogen blowpipe. He connects, with a stout strap of burnished copper, two brass binding-screws, and Electricity herself becomes his handmaid, and burns, melts, or destroys whatever of a conducting nature may complete the galvanic circuit. But all these brilliant results are, in an economical point of view, worthless, and are attained by an amount of expenditure, toil, anxiety, and disappointment, which none but the patient explorer of physical science can appreciate.

Friction, it might be thought, would long since have been rendered available as a mode of generating heat. There is in the world so much of wasted water-power, for instance, that an apparatus that would produce, cheaply, considerable calorific effects, could be arranged without much difficulty. A large iron wheel, driven by an endless band propelled by steam, for years warmed the whole of a spacious factory. The method by which savages procure fire by rubbing two sticks together, is both curious and well known. It is indeed slow and painful, a white man requiring half an hour to achieve what an Indian can do after a few minutes of vigilant toil; but the discovery must have been priceless to nations that knew as little of flint and steel as they did of Lucifers and Vestas.

Chemical means of producing heat scarcely deserve to be reckoned. The addition of water to quicklime, to pure acids, or to alkaline metals, may, indeed, largely exert heating power; but as none of these matters could have been prepared without igneous distillation, it is certain that the heat which they yield by any secondary process, is inferior to that expended in the work of their manufacture. The one facile, readily available, and easily gauged source of heat, is combustion, and its practical merits far outweigh those of all recondite methods of procuring a high temperature. There is little likelihood that a new fuel will be discovered, while the carboniferous regions of the globe are now mapped out with at least approximative accuracy. We know that very large coal-fields lie as yet untouched by the miner's pick, and that this is especially the case in North America, India, and Australia. But

unless machinery can be made to do what has hitherto been performed by manual labour, these vast subterranean reservoirs of combustible matter will yield abundant coal indeed, but not cheap coal. In all countries, old and new, the steady rise of prices and of wages forbids us to expect that our fires and our furnaces should ever be replenished at the low rates which formerly prevailed. If coal is ever again to be cheapened, the reduction in its cost will no doubt be due to the advance of mechanical science, and to the substitution of steel levers and winches, and the untiring might of steam, for the human thews and sinews on which we have as yet exclusively relied.

A more hopeful prospect exists in the certainty that the high price of fuel will be an incentive to its more economical employment, and to many discoveries as to how the most may be made of a product which has up to the present time been wastefully lavished. Scientific men have always regretted to mark the grimy pall of smoke that overhangs our towns, and to reflect that that murky canopy was composed of innumerable particles of unburnt carbon, while two-thirds of the heat that should have warmed our dwellings was ignorantly suffered to escape through the reeking chimneys. Then, too, in smelting-works, and in the subsequent processes to which iron, copper, tin, and zinc are subjected, the consumption of coal is recklessly disproportioned to the results obtained. Those flaring fires that in many a district make hideous the blackness of the night with their lurid breath, devour, as if in wantonness, an immense excess of valuable fuel over and above that which is really represented by bars and pigs and rails of hammered iron. Necessity alone will induce us to take thought for the morrow, and to derive the maximum of heating power from the minimum of costly coal.

The employment of both gas and petroleum, the former, and more manageable, for domestic, the latter for manufacturing, use, will no doubt grow more and more general, not merely for illumination, but for the production of heat. Gas, in particular, on account of its steady flow and equable temperature, the cleanness with which it burns, and the toil which it saves, seems admirably adapted to the households of the future. If once adequate ventilation could be secured, there would be no need for the retention of those rude cages and baskets of iron bars which we call our fire-places, and houses could be efficiently warmed without fear that the abolition of the cavernous chimney would prove prejudicial to the health of the inmates. One ingenious though humble device for economising the fuel wasted in cooking, is the Norwegian stewpan, employed in Sweden and Norway for preparing the soldiers' repasts at the cheapest rate as regards fuel. Each ration-tin, being filled with soup and meat that have been rapidly raised to the boiling pitch, is placed in a felt box, lined with a thick padding of cowhair, which prevents the escape of the latent caloric. The heat, unable to evaporate, is found, after three-quarters of an hour, to have thoroughly completed the cooking process, and an appetising meal is thus provided at a saving of fuel estimated at more than seventy per cent. Then, however, occurs the great question of ventilation, on which we had lately something to say. The fumes of gas are inconvenient and deleterious, and must be got rid of.

In short, let it be thoroughly understood, that whatever is done to economise heat and fuel, and cheapen cookery, there must be such a supply of pure air to the dwelling as is demanded by the conditions of our existence.

THE BLOSSOMING OF AN ALOE.

CHAPTER V.—LUCY.

TWENTY-ONE years ago, Kensington was quite out of town, and Hammersmith was positively rural. Delicious little bits of greenery, charming old houses with their lawns and gardens, might be discerned from the high-road; and cottages with porches covered with honeysuckle, and walls draped with roses, nestled in corners which have long since been explored by the iron roads, or occupied by the ubiquitous public-houses of the present time. The imposing terraces, and the eminently respectable shops, which intervene between the fag-end of Kensington and Hammersmith proper were, however, as imposing and respectable then as now; and the latter, trimly erected upon the raised footpath, with its two deep steps between the flags and the road, fairly epitomised all the reasonable requirements of human life; with the exception of meat. There was no butcher's shop in that genteel and convenient row; but there was a pastry-cook's, a chemist's, a stationer's, a linendraper's, a grocer's, a fruiterer's, a hairdresser's, and one of those fascinating institutions popularly known as a 'Berlin' shop, whereat every kind of futility in needlework might be obtained, and people might purchase useless and troublesome trifles at prices which, though reasonable in comparison with 'town,' were rather high when regarded from the point of view of value received. The 'Berlin' shop was a pretty object to contemplate, for it was neatly arranged, beautifully clean; and it displayed quite a dazzling assortment of toilet pin cushions covered with exquisitely executed embroidery; and babies' caps and hoods which frequently caused, and excused, a block on the pavement in shopping hours. At the back of the shop, and connected with it by a glass door, was a roomy and sufficiently lightsome parlour, whose windows then looked out upon fields and trees, where now there is a network of railway lines and a goods-station. The first floor consisted of two good-sized rooms, bearing in their furniture and general aspect the unmistakable character of 'apartments'; not, indeed, of the squalid and makeshift sort, but of the order which associates itself with scanty 'lace' curtains surmounted by chintz drapery, anti-macassars, wax-flowers under a glass shade on a round table in a corner, and the Art Union prints of 'Bolton Abbey' and 'A Hawking Party.' The prim orderliness of the outer or sitting room was somewhat disturbed. On the hard red settee a woman's gown was thrown, some minor articles of clothing were scattered about, and a handkerchief and gloves lay on the mantel-shelf. The folding-doors between this and the inner room were partly open, and

through them a bed with white coverings, a quiet figure extended upon it, and all the paraphernalia of a sick-room might be discerned.

Two women entered the sitting-room noiselessly, and advanced to the folding-doors.

'She is asleep,' said one of them, 'and she must not be disturbed. Keep him below until I fetch him.' The other woman nodded assentingly, and withdrew; but the speaker went into the bedroom, and narrowly inspected the sleeper.

'She will do now, I think,' thought the woman, who was of the profession rendered illustrious by Mrs Camp, but who did not resemble that famous personage; 'but a narrower escape I never saw.'

The face of the sleeper changed, as the nurse looked at her; she moved slightly, and a minute afterwards sighed, and awoke.

'I have been asleep a long time, and it is morning,' she said, in a low weak voice.

'It is ten o'clock,' said the nurse cheerfully, as she arranged the pillows and bed-coverings; 'and you have had a fine sleep. And now you must take your medicine, and be very quiet until the doctor comes.'

'I have been very ill indeed, have I not, nurse? Very near dying?'—this, with a quick rising sob, and distress in the searching eyes.

'Certainly not. I never heard such a thing. What can have put such a notion into your head?' said the nurse, with all the appearance of perfect candour and genuine surprise. 'Your wits must be wool-gathering a bit, I think. You have been no worse than other people, only a trifle shaken by the accident, that's all. But you must not talk of it, nor think of it. It's all over now, you know, and you must think of nothing but getting well and strong.'

Her patient made no reply, but meekly swallowed the medicine which the nurse presented to her, and again lay still with closed eyes.

'She's more languid than I like to see her,' said the nurse to herself; 'and I wish she'd ask for the baby.' At this moment a little wailing cry sounded from a bassinet upon the rug before the fire which glimmered in the grate, though it was a warm day in autumn, and the colour rose in the invalid's cheek.

'The baby!' she said, 'the baby! Oh, may I not have it?'

'Certainly, if you don't agitate yourself, you may. I will give it to you presently; a bonny little lass she is too, though she has come a bit too soon; but she'll be none the worse of that, with care. Bless you, I've seen scores smaller than she is thrive and do well! Yes, yes, you shall keep her while I'm getting your arrowroot ready.' The nurse placed the infant in the young mother's arms, and affecting to be unconscious that she was crying silently over the child, busied herself in preparing some food.

But when the patient had taken a few spoonfuls of nourishment, and was somewhat more calm, the

nurse said she wondered the doctor had not yet come, and again mentioned the hour.

The result she was aiming at followed. 'Ten o'clock past,' repeated the invalid; 'the letters must have come. Is there not one for me? Oh, there must be! May I not have it? I must, I must!'

'You should have it, of course, if there was one, but there isn't. Were you expecting a letter from any one in particular?'

'Yes, yes; from my husband! And it has not come! He does not know that I have been so ill; but I thought—I made sure—he would have written to me, yesterday.'

'But he does know,' said the nurse. 'Mrs Ferris sent him a message just to tell him that it was all right, you know, and I daresay he has not written because he intends to come. He would naturally be anxious.'

Her patient raised herself on her elbow, and looked into the nurse's face; her own was flushed with the colour of a wild rose, and her blue eyes shone with a sudden beautiful light.

'He is here!' she cried. 'He has come! I see it. I know it. You are trying to break it to me gently, but it won't harm me. Let him come to me; let me see him. I shall get well and strong then. It's true, isn't it? He is here?'

'Well, then, he is,' said the nurse, quite unprofessionally affected by the appeal of the fair young sufferer, whose life had been despaired of a short time before. 'He is here, and you shall see him, if you try to be quiet; which you must, my dear, because there's him and the baby to think about, you know.'

Her patient had dropped back upon her pillow before she ceased speaking, and lay looking at her with imploring eyes; her hands clasped, and her lips quivering. So the nurse did the wisest thing in her power; she went quickly to the head of the stairs, and called out: 'Mrs Ferris!'

A voice answered from below, and the nurse said: 'Tell the gentleman he may step up now, if he pleases.'

A light quick foot upon the stairs, a whisper upon the landing, and a young man passes into the invalid's room, goes noiselessly up to the bed, and clasps her in his arms; while she hides her wild-flower face in his breast, with a low cry of 'David! David!'

If I were writing a fiction, it would be easy for me to invent a train of events by which I might excuse, if not justify, David Mervyn's conduct in the matter which the concluding words of my last sentence have revealed. I might readily improvise a lofty origin and a reverse of fortune for Lucy Grainger, and have her thrown on the protection of her lover under circumstances of the most romantic character. The hard facts which I am narrating do not, however, admit of any such palliative treatment, but must be simply admitted, with their full weight of testimony to the lack of wisdom of the hero of this simple story. The beautiful young woman by whose side he was kneeling, to whom he was whispering those sweetest words of love and thankfulness which dwell

for ever in the memory of any woman who has listened to them—outlasting the echo of her bridegroom's vows—was the sister of Mrs Ferris, who kept the Berlin shop, and let out her first floor in apartments. She had been David Mervyn's wife for nearly a year; and if her beauty, sweetness of disposition, devoted love for him, and perfect contentment with anything he thought fit to decree, were any excuse for his having married beneath him, Lucy supplied it. If not, then there was no excuse for a deed of folly, one of the last of which David Mervyn's friends would have suspected him. The history of Lucy Grainger may be told in a few lines.

Her father was a respectable but not very prosperous farmer in Surrey, and she was the youngest of his three children, of whom the eldest was a son. Lucy's mother died when she was ten years old, at which time her sister was eighteen, and her brother twenty, and then Lucy was sent to a school at Guildford, where she learned very little, but had an opportunity of cultivating a fine natural taste for music, and one of the most beautiful voices with which any English girl was ever endowed. Two years later, the elder girl, who had been visiting some friends in London, met and married James Ferris, a sufficiently worthy individual, with a vague employment 'in the docks,' and some savings, which the pair invested in the purchase of the good-will, fixtures, and stock of the Berlin shop at Hammersmith.

The enterprise was tolerably successful, and the household was a happy one. Mrs Ferris was a sensible, active, good-natured, honest-hearted, commonplace woman, as different from the lovely, attractive, naturally refined girl her sister became, as if there existed no kindred between them. She was fond of Lucy, and kind to her, but she could not understand her being so slight and delicate, though it was perhaps explained by her 'taking after' her mother's family, the Leeseons, who were never much to speak of—though people said they were clever in book-learning—rather than the stout, fresh-coloured, healthy Graingers.

Lucy came to London occasionally, and passed many contented days in the parlour behind the Berlin shop. When she was seventeen, her father died, and she continued to live with her brother at the farm. But John Grainger was not of the quiet and stationary sort; he had read something and heard more of what was doing in other countries, and he was minded to try his luck in one of the colonies when he should have saved enough to start fair out there. It would be no long time first, for his father had died better off than was supposed, and John Grainger bade Lucy make up her mind to a voyage to the antipodes. She was very much frightened, and far from willing to do so, for there was little in common, except their mutual regard, between Lucy and her brother.

But her fears were not to be realised; her lot was far otherwise ordained. David Mervyn, who was staying at a great house in the neighbourhood of Lucy's home, in the shooting season, met her by one of those accidents which frequently occur and are forgotten ninety-nine times out of a hundred for one that they are remembered; met her again, not quite by accident, and fell passionately in love with her. Lucy, though genuinely innocent, was not at all silly, but yet she did not understand the width and depth of the social gulf which divided

David Mervyn from herself. That he was an officer and a gentleman, while she was a farmer's daughter, constituted, she knew, a great disparity; but she could not form any idea of the intricate complication of unsuitability and obnoxiousness which would be presented to the minds of his family by his marriage with her. The young girl's fancy was easily captivated, and her heart was soon won by the finest, the handsomest, the gentlest, most gallant gentleman she had ever seen, who treated her with the captivating deference inspired by a strong and passionate attachment, and taught her for the first time the power of her womanly charms. Lucy's one accomplishment, that of music, was rarely to be found among women in her position of life; and in such perfection as she possessed it, would have been rare indeed in any, and it added its refining influence to the delicate beauty of her face, and the grace of her figure. It was no great wonder that David, with the spell of first love and its illusions upon him, should look at this fair creature, and listen to her voice, thrilling, powerful, exquisitely sweet, and believe that she would do no discredit to his choice, amid the ladies of higher degree but far inferior charms, who formed his mother's and sister's social circle. How many of them could compete with his Lucy? he asked himself, defiantly, when he recalled their robust frames, weather-touched complexions, harsh voices, and masculine tastes, for much horseyness and doggyness prevailed, in those days, in the Barrholme district, and David loathed such tastes and the jargon of them. Who, after Marion, he asked himself, had manners so gentle, a voice so low and sweet, movements so soft and graceful, ways so pure and womanly as his 'Wild Rose?' Not one of them all, except Anne Cairnes, on whom they had looked down in old times, until her father had fairly conquered his position among them, as his Lucy should conquer hers some day—Anne Cairnes, whose father was a self-made man, whose mother, as true a lady as ever lived, had been, like his Lucy, a farmer's daughter. But, even while he thought all this, David Mervyn did not deceive himself as to the difficulty which he should feel in apprising his mother of his intended marriage; and his very earnestness in representing the matter in the best light to himself, proved to him, when he fairly faced the position, on the first absence from his betrothed, that the difficulty was almost insurmountable, except under conditions which he felt most reluctant to accept, conditions involving a great shock to his invalid father, and a serious, perhaps deadly, quarrel between his mother and himself. Neither of these considerations, however maturely revolved in his mind, would have withheld David from asking Lucy to become his wife; he felt that the entire happiness of his life was involved in the winning of her, and he could not sacrifice that to any one; but he did not underrate their force or their weight. Up to the present crisis in his life, he had been a very good son, submissive to an almost old-fashioned extent to his mother's somewhat imperious ways—to be sure, they had not militated much against his independence and comfort—but old habit broke down now; the strength of the new tide of feeling carried away the former barriers. With their consent, if possible, but, if not, then without it, Lucy Grainger should be his wife.

CHAPTER VI.—THE NEWS.

It was during his autumn leave, and immediately after his return from Barholm, that David had gone into Surrey upon the visit which was destined to be so important to him. He rejoined his regiment at Newbridge, whence it was to remove to England shortly before Christmas, in all the exhilaration of success. He had won Lucy; she had promised to be his, and he had now only to consider how he might best reconcile his father and mother to the inevitable. His reflections on this point were complicated very shortly by the receipt of a letter from Lady Mervyn, in which she told him, firstly, that his sister was to be married, after some time, to Gordon Graeme; and secondly, that his father had had an unusually severe attack of gout, and was beginning the winter with very unfavourable prospects. Something more than commonly despondent in the tone of his mother's letter, though her daughter's engagement pleased her, struck David painfully, and she added to her account of Sir Alexander's illness these words: 'his nervousness and irritability have so much increased, that we are obliged to be careful of everything that is said and done in his presence. Halliday is apprehensive about his heart; and has enjoined such caution, that I hardly dared to tell him of Gordon's proposal—however, it had to be done, and he took it well; I suppose good news never harmed any one.'

Here was an increase of difficulty: the double risk in his father's case, and the unpleasantness of making a commotion, probably a quarrel, in the family, just at the time when his sister's betrothal to an approved and eligible suitor would give the contrast of his own intended marriage additional poignancy. He could not make up his mind to any course for the present, and so he postponed decision. But he was not to enjoy a lengthened respite from the necessity for making up his mind. After the lapse of a week, he received a letter from John Grainger, which made an immediate resolution imperative. Lucy's brother knew as little of the world of which David Mervyn and his relatives formed a part as she did, but he had a much keener appreciation of the facts of the situation than the young girl, who saw little beyond her lover, and their love, and a vague, distant prospect of a terrestrial paradise to be shared with him. He cared little or nothing about the parents of David Mervyn, their approval, or displeasure; he hardly knew what their rank and position were; but he cared much for his sister's honour and safety, and he regarded it as the simplest thing possible that a man sufficiently his own master to propose to a girl, should be ready to marry her whenever it should become advisable. It had become advisable now, unless he should adopt the alternative of giving her up; for John Grainger had been made a good offer for his farm, and he intended to take it, and go out at once to Australia, notwithstanding the unpropitious season, with a friend who had agreed to join him in his venture in the New World. He would either take his sister with him, or see her married, and safe, before he left England; it was for David Mervyn to decide which it should be; and the farmer placed the alternative before the gentleman with a perfectly cool and business-like brevity.

He did not mistrust Captain Mervyn, he explained, but he was his sister's protector, and he meant to fulfil his trust. He had not yet told Lucy of the resolution he had come to, John Grainger added; he thought the proper thing was to put the matter before Captain Mervyn in the first instance. There was no fault at all to be found with the letter; but it caused David to experience more distress and embarrassment than he had ever previously known. He did not consume much time in deliberation; exclusive of every consideration of honour and plighted troth, the mere possibility of losing Lucy was too terrible to contemplate. He immediately applied for a short leave, on the plea of 'urgent private affairs' (soon to be a popular by-word), which was granted, and he repaired to the farm in Surrey, to reply to John Grainger's communication in person.

After his arrival at the farm, his difficulties seemed to clear themselves away. Lucy's joy, her brother's stolid satisfaction, and his own love for the beautiful girl, more than ever sweet, beautiful, and incomparable, were so much more important than anything outside of them could be, that he no longer hesitated. He would marry Lucy as soon as possible, and trust to time and circumstances for setting his bride and himself right with his parents. He found that John Grainger was not at all disposed to stand out for an announcement of the marriage; he regarded that as a 'secondary matter, concerning Captain Mervyn but not himself; so long as he should be satisfied that a perfectly legal and binding marriage had taken place. That was all he cared about; they might reveal it or conceal it as they pleased. Whatever there was to come into, of rank or wealth, his sister's husband, and consequently his sister, must come into, one day; and in the meantime, she would be very comfortable, he made no doubt. Lucy's sentiments on the point were quite as acquiescent, if less practical and prosaic. Whatever David thought best must be best; whatever David wished, she was ready to agree to; she wanted nobody but David; to be David's wife, under any circumstances, whether known to all the world, or unknown by any one in the world, must be the most blessed of human destinies. It was easy for David to persuade himself that there was no moral or virtual difference between the temporary concealment of his marriage and that of his intention to marry. Then the steps necessary to be taken were discussed; and it was decided that Lucy should go to London, to remain with her sister until the marriage could take place. This was done, and David Mervyn had a pleasant proof of the insignificance of the individual in the crowd, afforded by the perfect privacy and security with which he married Lucy Grainger at a well-known church in London, within a mile of the residences of several acquaintances, in three weeks after his receipt of her brother's letter.

After a brief but very happy honeymoon, Captain Mervyn placed his wife once more under her sister's care, and rejoined his regiment. The separation would not be for long; the next quarter for the regiment was in the vicinity of London, and strongly as David felt the expediency of procuring for Lucy more elevated associations, he knew that could not be done at present, without the revelation of their marriage, and Lucy was as contented

as she could be anywhere away from him, in her first-floor at Hammersmith, which she thenceforth occupied in the capacity of a lodger. With the new year, the young couple were reunited; John Grainger had sailed for Sydney; the marriage was unsuspected among David Mervyn's friends, and there was no such alteration in the state of affairs at Barrholme as to induce him to think that a favourable opportunity for revealing the truth had arrived. Time went on; Lucy's sister's house was easily attainable by David; Lucy was happy there, and Mrs Ferris was much too sensible a woman to intrude herself upon her sister's husband. She was well pleased that Lucy had made a marriage which was happy in the present, and must inevitably be in every sense advantageous in the future, but she knew that when the advantages of the position should be disclosed, an entire change in the relations of herself and her sister must take place. 'Why not begin at once,' thought the independent-spirited woman, 'and let him see that we want nothing from him, while wishing him well, and that he has nothing to fear from us in the way of intrusion.' Thus, David, when he visited his wife, rarely came in contact with Mrs Ferris, and was altogether lulled into a happy state of security, only occasionally disturbed as the year wore on, by the recollection that the time fixed for his sister's marriage was drawing near, and that he had resolved to reveal his own to his mother after that event. There was now an additional reason for this resolve: Lucy would soon become a mother, and David felt that her position must be assured. Besides, he was beginning to feel that some more money would be very acceptable, and he was too honourable to ask his father for additional funds, while he maintained secrecy on so important a subject.

There was only one drawback to the happiness of this hidden union: it was the delicacy of Lucy's health; but this would cease, she and David were assured, when her baby should be born. Day by day the young husband's love for his beautiful 'Wild Rose' grew and strengthened. The romance of the situation was not without its charm; and that of Lucy's sunny, innocent, loving nature asserted itself more powerfully. She took and held possession of every thought and feeling, but ruled him with the gentlest sway; he wondered at the excess of happiness which this pure and perfect love brought to him, and strengthened himself against the heartburning and vexation which might be imminent, in its calm sufficiency. The first-floor of a Berlin shop, in a London suburb, is not a likely scene for an idyl, but, happily, the poetry of youth and love is independent of surroundings.

Accident delayed David's departure from London until the day before his sister's marriage, and thus frustrated his intention of taking her into his confidence in the first instance. In the few words which he had the opportunity of saying to her, he indicated the existence of a difficulty with regard to his mother, and Marion Graeme referred him for aid to Anne Cairnes, with the result already described. In order to bring this simple story back to the point at which I was constrained to digress into retrospect, I have merely to add, that when David Mervyn had escorted the old Laird of Gairloch to the gate-lodges of Barrholme, and there seen him safely off the premises in his

dog-cart, he turned in at the gate, with the intention of joining Anne Cairnes on the rock-platform. But he was stopped by the sound of a gig coming up rapidly, and hailed by name by a man from the seat beside the driver. The man was the bearer of a telegraphic despatch from Mrs Ferris, which had been received at the nearest town to Barrholme, and which ran thus: 'L. was badly hurt in a cab accident yesterday, and is most dangerously ill. Child living.'

THE CITY OF MANDALAY.

THE law of change, after a suspension of its action lasting for centuries, has begun to manifest itself in the distant countries of South-eastern Asia which are now touched by the onward motion of the great wave of progress which has broken with astonishing force over the empire of Japan, and the apathy of ages is at an end. Last year, the kings of Siam and Cambodia left, for the first time in history, their capital cities, and travelled in search of instruction and pleasure, the one to Java and India, and the other to Hong-kong and Peking. This fact is, taken alone, of immense significance; it indicates the voluntary throwing down of an immemorial barrier of superstition and custom, of prestige and prejudice, and a movement on the part of the hitherto almost mythical people of those countries towards an entrance into the community of nations. The inevitable march of events will doubtless bring Europe and America into intimate relations with the kingdoms and protectorates of 'Farther India,' as it has brought them into intimate relations with Japan; and it is most desirable that we should obtain every available addition to our limited knowledge of their present condition, capabilities, and prospects. Such an opportunity is afforded by Mr Vincent's account of his travels* throughout the vast region, with an area of one million square miles, and a population of twenty-five million souls, which he comprehensively styles South-eastern Asia. After a short stay at Rangoon, the commercial capital, Mr Vincent embarked for a voyage through British Burmah, and the independent kingdom of Ava, on the fourth river of the world in point of size, the Irrawaddy (so called from the elephant of Indra), which is the great highway into the dominions of the 'golden-footed king.' The Irrawaddy—whose source has not yet been discovered, but is supposed to be in the Himalaya east of Tibet—is one thousand four hundred miles in length; it varies from three to five miles in width; and its banks present to the traveller many of the most characteristic features of the strange land through which it flows, and the strange people who dwell there. After endless stretches of the elephant-grass—in which the great beast may feed concealed from sight—come villages, all bamboo and palm-mats, and daintily devised grass roofs; and people in gaudy garments, who squat upon the river-brink to gaze upon the fire-boat. After long stretches of sandy beach, come miles of banana groves, and beautiful green fringes of trees close by the water's edge; plains of the richest vegetation—and a spur of the Arakan hills, with a number of small niches

* *The Land of the White Elephant.* By Frank Vincent. Sampson Low, Marston, & Co.

cut in the face of the rock, as many as forty in one row; the niches containing statues of Gaudama (the last Buddha), in marble, brick, and plaster, many of which are painted and gilded. The river-craft, generally constructed of teak timber, are somewhat like ancient Phœnician galleys, with high and beautifully carved sterns; but their progress is extremely slow. The Burmese men are indolent; but the women, who are compelled to do all the heaviest and most irksome work, are industrious. Their marriages are subject to very simple laws. If a married couple are tired of each other's society, they dissolve marriage in the following conclusive manner: 'They respectively light two candles, and shutting up their hut, sit down, and wait quietly until they are burned up. The one whose candle burns out first, gets up at once, and leaves the house for ever, taking nothing but the clothes he or she may have on at the time; all else becomes the property of the other party.'

Boundary pillars separate British Burmah from the still independent portion of the vast territory which is called Ava; the former comprises the three provinces of Arakan, Pegu, and Tenasserim; the latter is entirely inland. King Mounglon has no seaboard; and the Irrawaddy, though passing through foreign territory, is an outlet for the produce of his country. The boundary pillars passed, the first object of great interest is the ancient ruined city of Pagan, whose remains extend for ten miles, and comprise a thousand pagodas of all sizes, shapes, and colours, constructed a thousand years ago, but whose various forms and contents render it extremely doubtful what people were the builders or possessors of the former city. Mr Vincent observed that besides the purely Buddhistical monuments, there are statues bearing remarkable resemblances to those of the Egyptian myths; others are of a Brahminical character; and others, wonderful as it seems, bespeak the incorporation of Christian doctrines with the mixed symbols of heathenism. From Pagan onward the features of the river-bank are of great interest. Just beyond the ruins, the bank rises in a high sandstone bluff, with many small openings cut in its almost inaccessible face. These lead to equally small chambers within, which are tenanted by ascetic priests. The next town is Tsagaing, which lies at the foot of beautiful hills, covered with pagodas, temples, griffins, and winding staircases; some of those which lead from the town to the pagodas on the tops of the hills are half a mile in length. Within a short distance of Ava, once famous for its silk manufacture, stands, on the left bank of the river, an immense bell-shaped pagoda, which resembles the tombs in the old cities near Delhi. This is an exceedingly sacred place, and once a year it is the scene of a great *mala*, or religious festival of different nations, which, however, would appear to be free from the revolting features of the kindred gatherings in Hindustan. Ava, the former capital, is now a wretched village, but the adjacent ruins attest its former splendour. The ancient city-wall, sixteen feet high, and ten feet thick, inclosed seven miles of building. After several changes of capital, the city of Mandalay has been, since 1857, the abode of the king and the centre of power. The suburbs of the 'golden city' are built on piles; the city proper is a square, surrounded by a lofty wall of unplastered brick, with a notched parapet, and

having a deep broad moat filled with clear water. The 'Crystal Palace,' or royal house, is a fantastically beautiful building, with galleries, pagodas, terraces, bell-towers, all highly ornamented, and towering above the rest is the graceful spire of a magnificent Hall of Audience.

Mr Vincent and his friend were favoured with an interview with King Mounglon, who persisted in ascribing a politico-commercial purpose to the visit of the American traveller. The crown-prince was present: he is an intelligent and handsome young man, and was plainly dressed, except that he wore immense clusters of diamonds in his ears. The king is a short, stout, pleasant, crafty-looking gentleman, who wears no diamonds, has a grave and leisurely manner, and inspects his visitors through a powerful opera-glass at a distance of twenty feet. One of his four wives assisted at the interview, fanning her 'golden-footed' lord the while, and attending to his golden betel-box and spittoon. She was extremely handsome, and very curious about the strangers. The splendid 'Hall of Audience,' which is only used on great occasions, is a building as curious as it is beautiful: 'it consists of a lofty tower, with terraces of little roofs rising one above the other, and crowned by the gold umbrella in the centre, and two smaller ones on each wing, over a long central court or hall (both also in the many-roofed style of Burmese architecture), and the whole gaudily painted in red and gold, and covered with carvings and decorations of brass, china, and glass. In front of the grand staircase are two immense cannon, mounted on primitive carriages, having solid wooden "block" wheels.' Within the vast inclosed square of which this beautiful building forms the centre, are barracks, a carriage-foundry, the royal gardens, the ordnance stores, the abode of the famous 'White Elephant of Ava,' canoes, sheds, and long rows of stables tenanted by the elephants used for purposes of war and work. The working elephants are black. Mr Vincent and his companion (who could not induce the king to believe that they had travelled twelve thousand miles especially to pay their respects to him, and to see the white elephant) were not of sufficient importance to be received in the Hall of Audience; they were summoned to the Mhaw-gaw, or Crystal Palace, which they entered by a gate in a low brick wall, and immediately found themselves calmly investigated by a huge elephant in a red shed; where he must have looked like a hall porter. The audience took place in a pillared portico, open on two sides, and the scene must have been a curious one, especially to the minds of the republican gentlemen.

'At our backs,' says the author, 'there was a golden door, leading to another chamber, and before us was a large green baize curtain, extending from the ceiling to the floor of another room, which was some few feet above us. In the centre of this screen was an opening about ten feet square; here a red velvet cushion, and a pair of silver-mounted *binoculars*, were laid upon the floor, where there was an elegantly carpeted staircase connecting the two chambers. The roof was supported by immense pillars, grouped round the bases of two of which were the royal umbrellas and other *insignia*. No one, save the king, is allowed to possess a white umbrella; and princes of the blood are allowed to have *two* umbrellas

(gilt, with poles ten or fifteen feet in length attached) carried before them by their servants when they walk or ride in public; ministers but one. Our party was reinforced by several other persons waiting for an audience, and our presents were displayed before us, placed on little wooden stands about a foot in height. The natives were all prostrating themselves flat upon their stomachs, with their noses nearly touching the carpets, and their eyes cast down in a most abject and servile manner. Presently, we heard two or three muffled booms, and the king appeared. He quietly and slowly laid himself down, reclining against the velvet cushion, and only partially facing the audience. The royal secretary read aloud our names, business, and the list of the presents which were placed before us: this was done in a loud, drawing style, and concluded with a sort of supplicating moan.

It is evident that King Mounglou is almost as smart a man as if he shared his visitor's nationality, for, firmly persuaded that the latter's mission was political, and wishing to detain him at Mandalay until the inquiries he would send to America should be answered, he began to bribe him. His Majesty wished to make a commercial treaty with America; Mr Vincent's services would be invaluable. He should have a house, as many wives as he wished, and the king would 'make his fortune,' and give him high rank among his own nobles. Mr Vincent eluded these tempting offers, by saying he must first return to his own country, in order to procure his parents' sanction to his entering the service of the king. Mounglou is a remarkable person, in whose life there have been vicissitudes. He succeeded his brother—who was deposed for his tyranny—after having lived for many years in a Buddhist monastery, where he had taken vows as a *phongyee* in his boyhood. His rule is despotic, but the weight of it is not felt far from the capital: the remote districts are very independent, the people merely swearing allegiance to the king whenever he sends officers to exact their oaths, but going their own way in the meantime. The splendour of the court-life is a little dimmed by the following facts: 'The king dares not leave his palace for fear of foul play, and he has consequently never seen his own war canoes or steamers, nor has he ever visited his new palace, built near the river. The government is rotten to the core; bribery and corruption reign paramount. The king appropriates most of the revenue. (We find elsewhere that there is a royal monopoly of the rice, marble, amber, gold, copper, and all gems over one hundred rupees in value.) Many of his ministers receive no salaries at all; and the king buys goods of merchants, and serves them out as pay to his troops and followers, who afterwards have to sell them in the bazaars at half-price; besides, the country bitterly suffers from the extortionate duties, and from the guild of brokers, who rule the markets according to the order of the king or his ministers, so that no one can buy or sell save through these brokers.' It is to be hoped that the result of the recent Burmese Embassy to England and France may be an amelioration in the administration of the kingdom, especially as the king had already, prior to the despatch of the ambassadors, whose appearance in London and Paris was a salient feature of the present year (1874), evinced

comprehension and appreciation to a certain extent of the advantages of western civilisation. 'He offers,' says Mr Vincent, 'good inducements to European mechanics and engineers to establish themselves in Mandalay; and he has brought his country into telegraphic communication with India and Europe.' The minister of the interior described the latter achievement to Mr Vincent as follows: 'The present founder of the city of Mandalay or Rutuapon, Builder of the Royal Palace, Ruler of the Sea and Land, Lord of the Celestial Elephant, and Master of many White Elephants, owner of the Shekyah or Indra's Weapon, Lord of the Power of Life and Death, and Great Chief of Righteousness, being exceedingly anxious for the welfare of his people, in the year 1231 introduced the telegraph, a science the elements of which may be compared to thunder and lightning for rapidity and brilliancy, and such as his royal ancestors in successive generations had never attempted.'

The 'bazaar'—always an object of attraction in an eastern city—is much the same in them all. At Mandalay the bazaars and the market are large and well supplied. Fish and vegetables are good, but no kind of meat is to be had. Tea is grown upon the northern hills which border upon the Chinese province of Yun-nan; but the Burmese use it differently from all other nations. Instead of steeping the leaves, and drinking the decoction, they make a salad of them, adding garlic, oil, and pepper. Much of the trade of the country is carried on by means of barter. Petroleum and rice are the chief circulating media. Mr Vincent visited the curious navy, which the king dares not go out to see. It consists of a number of war-canoes, gilded outside, and painted red inside, which lie in a small creek. They are very long, with prow and stern curling up high, and are paddled by forty or sixty men. The king's barge is the grandest of them all, but it lay too far away for Mr Vincent to describe it, so he quotes the following account of it: 'This splendid vessel has been built on two large canoes, and is covered with the richest carving and gilding. This also, when used, will be drawn by war-boats. In the centre is a lofty tower with eight or nine square stories or terraces of black and gold, surmounted by the *tee*, or umbrella. The prows of the two canoes on which this water-palace is constructed consist each of an immense silver dragon; and behind each dragon is the fierce colossal figure of a warrior deity, called by the Burmese a *Nat*, but which is evidently identical with one of the *Devatas* of Hindu mythology, of which Indra is the special type. The sterns of the canoes are beautifully adorned with a fretted work consisting of small pieces of looking-glass, which has a very rich appearance.'

There still remained an object of mysterious interest for the American traveller to see, before he should have exhausted the characteristic curiosities of the capital of Ava. This was the famous white elephant, a more distinguished appanage of the royal dignity of Ava than even his better known congener is of that of Siam. 'Lord of the White Elephant' is the proudest of King Mounglou's titles; and the strangest among the annals of the Burmese kingdom are those which recount the extraordinary honours that have been paid from time immemorial to 'the Apis

of the Buddhists.' In the black-letter folio of Mr Ralph Fitch, who travelled through Burmah in 1582, there is a wonderful account of the white elephants, and, two centuries later, Sangermano describes the capture, in the forests of Pegu, the transportation to the capital, and the royal treatment, of the 'celestial' white elephant of that time. It was bound with scarlet cords, and waited upon by the highest mandarins of the empire; the place where it was taken being infested with mosquitoes, a silken net was made to protect it from them; it was transported to Amarapoor (the then capital), in a boat having a pavilion draped with gold-embroidered silk; and on its arrival in the city, a festival, lasting three days, took place in its honour. Costly gifts, including one gold vase weighing four hundred and eighty ounces, were brought to it by the mandarins. When this animal (a female) died, its funeral was conducted with the rites prescribed for that of a queen; the body was burned upon a pile of precious wood, the pyre being fired with the aid of four immense gilt bellows, placed at its corners. Three days afterwards, its ashes were gathered by the chief mandarins, enshrined in gilt urns, and buried in the royal cemetery, where a superb mausoleum was raised over its grave.

Even at the present day, the white elephants are objects of royal favour and general veneration, apart from their divine character as transmutating Buddhas. They are held to bring prosperity in peace and good fortune in war; and their death is regarded as a national calamity, for which the entire people go in mourning, and shave their heads. The present 'celestial' treasure of King Moulglou at Mandalay is a disappointing beast, being of medium size, and not in the least white, but, on the contrary, black, with white eyes, and white spots on his forehead. He is surrounded with all the adjuncts of royalty; but he is likewise—being vicious—chained by the fore-leg. Altogether, the white elephant was the least satisfactory of the curiosities which rewarded Mr Vincent for his seven hundred miles of travel between Rangoon, the capital of British Burmah, and Mandalay, the capital of independent Ava.

SCENES UNDERGROUND.

I HAD heard a great deal about the underground canals, that, branching from the Bridgewater Canal at Worsley, stretch away some eighty yards below the surface of the ground to the different collieries in the direction of Bolton; and I long had wished to see for myself these marvels of engineering skill. Having obtained permission from the 'powers that be,' we presented ourselves early one morning at one of the many 'pits' on the Bridgewater estate. It was a raw, cold morning; a genuine March day—though the almanacs said it was the 1st of April—and glad were we to put into port, and get into the workmen's cabin, within reach of its fire. Here we found a number of miners, some taking their breakfast of bread and bacon, some taking their dessert in the way of a pipe, and all seeming very much at ease, so that we could scarcely imagine that they belonged to that 'striking' class of men of whom we have heard so much recently. We heard no whisper about limiting the 'output' in order to keep up prices; nor was any reference made to the twenty

thousand out on strike in South Staffordshire, who, Canute-like, are trying to stop the flow of the tide, or rather trying to prevent its ebb. Over the fire was a printed notice of exemption, allowing boys between the ages of ten and twelve to work in a certain seam, it having been satisfactorily proved to Her Majesty's Secretary that the said 'yard-seam' could not be worked without boys of such an age.

Our seven lamps are now lighted on the work-bench; genuine 'Davies,' with a little yellow flame inside their covering of gauze, and all securely locked.

'We have to lock them,' said the man, 'or else the lads would get playing with them. Even now they will sometimes tamper with them, and take out the lamp; but they get fined if they are found out.'

We just look in at the engine-house, where the wire-ropes are coiled around a huge drum, and the hand of the indicator, travelling round a dial-plate, tells when the cage has touched the bottom.

'Let us down gently,' we said to the man whose hand was on the valve; but he only smiled ironically, as if he would say: 'No; I'll not slacken speed for you; you shall go by the down-express.'

Now we take our place in the cage, seven of us packed in a space about three feet by two and a half, and down we plunge into the darkness. I do not know—and I have no curiosity to do so—what the sensation may be as the drop falls from the scaffold, but I thought it would not be much unlike this, as we felt our floor sinking beneath us, and letting us down, we scarcely knew whither. But just as we are getting used to it, and are beginning to enjoy it, all at once it seems as if the engine were suddenly reversed, and we were going up instead of down. For a moment there was an open rupture between fact and feeling, between reason and sensation; and how to arbitrate between them we did not know. We found, however, it was only the slackening of speed which lifting now against our momentum appeared to change our descent into an ascent. As we reach the bottom—three hundred and fifty yards down—we step from our narrow prison, and are thankful to feel again the solid ground under our feet. But how dark! We are enveloped in a thick blackness, and in the faint glimmer of our lamps we see black faces peering at us, as if questioning our right to be there. Turning away from the shaft, our captain leads us first to the stables where the ponies are kept. They looked, in their internal arrangements, very much like the stables we have seen above-ground, with the exception that they have no windows—an omission we could readily account for. These ponies are quite an institution, the sacred animals of these underground temples. Down in their quiet, dark world, they live from year-in to year-out, taking their eight hours a day—if I may use that expression here, where the days are all lost in one long night. They are well fed, and very tractable, knowing every road and every turn in all these workings. They seem contented, and yet I fancied I could see traces of melancholy upon their intelligent faces; there was a lack of sprightliness and verve about them, as if they were remembering the old times when they had their gallops amongst the grass and flowers of spring.

After our eyes have become accustomed to the

darkness, and our lamps have been examined—as every lamp must be before it can be carried into the mine—we start off with our body-guard of four, marching in true Indian file, each with lamp in hand, our good Captain B. bringing up the rear. Tramp, tramp we go along the level tram-road on which the tubs now and then come rattling towards the shaft, each tub marked with its ‘tally,’ a little tin plate with a certain number stamped upon it, to shew to whose credit the tub must be charged in the fortnightly pay. To ‘cut a tub’ by removing the tally, and inserting one’s own instead of it, is a very grievous offence against mine morals, and if a man once be discovered doing it, he is ostracised directly. For a time, we can walk erect, but very soon our fore-man gives the order ‘Stoop’—an order which we promptly obey—and then we trudge on at the collier’s double, looking well to our feet the while. But what is this on our right, where the black wall is hollowed out? It is the ‘refuge;’ so we will step aside, and let this train of tubs pass us. Up above, it is not so, for on that London and North-western the coal-trains shunt on one side to clear the line for passengers or mails; but down here in these antipodes, things are reversed, and passengers must step aside when the coal-train comes. We find roads branching off to the right and left, little veins that feed these greater arteries; and here, stretching across our path, is a rope that draws the wagons from a lower level up this steep incline. Just to our left is one of those old-fashioned engines called a ‘whimsey.’ Round and round wheels the pony in a slow trot; and he seems to know his work thoroughly, for with but a word from his driver, who is looking after the wagons as they come up, Dobbin starts or stops, and when the engine wants reversing, he turns round of his own accord. At length we come to a canvas sheet—or screen, as they call it—blocking up our way. They are working a new road up to our left, and so this screen is put up to turn the air-currents into the new workings. After a scramble up a steep ascent, we find them busy working at the cannal seam. Three or four miners are sitting down to their work, in an atmosphere so close and hot it makes us perspire freely even to stand and look on. We did not venture into the narrower seams, as we were not adepts at crawling; but there are seams worked in another part of the mine only eighteen inches high. Think of it! a man stretched out at full length on his side, and in that position picking away at the coal for hours together, resting his elbow on a piece of rag! But habit helps so much. Some men seem to choose these narrow seams; and as to colliers in general, they are so limp of body that they can bend into all kinds of queer shapes. One of them told me he could work far better when bending than when sitting erect; and he said that one day spending some hours in a mill, his back fairly ached with being upright so long, and he longed to crouch down into the familiar posture!

Getting back to the shaft, a clock told us we must be off, if we would finish our morning’s work. So, entering the cage again, the signal was given to the engineman above to draw us up to the ‘level.’ This is a landing some eighty yards from the surface, and here we step out by the canal for another exploring expedition.

Joining with the main Bridgewater at Worsley, this canal creeps up some miles underground, and then branching off in every direction, it communicates with the numerous pits on the Bridgewater estate, thus affording an easy and a cheap mode of transit to the markets. Taking all its branches together, it forms an underground water-way of forty-five miles, the longest connected tunnel in the world. One scarcely knows whom to admire most, the persistent duke, whose iron will no difficulty seemed to daunt; or the famous engineer, Brindley, who has left the world proofs of such wretched spelling, and of such consummate skill.

Leaving the shaft, we groped our way through the timber-yard to the plane, or ‘plan,’ as it is commonly called. This is an incline of some hundred yards long, connecting the lower canal with another that ran on a higher level, a hundred and twenty feet above. When it was in use, the laden barges were lifted out of the upper canal at the ‘locks,’ and then put on rails; they were carried down this steep incline to the lower canal, the full barge in its descent drawing up an empty one. Not being in use now, the upper canal is dry, with the exception of a sediment of slush. Making our way down the plane, a flight of steps leads us to the barge that is moored in waiting for us. Thanks to the kind forethought of our friends, a seat had been extemporised in the barge, where we soon deposited both our lamps and ourselves. Each boat is about fifty-one feet in length, and when loaded, carries from eight to ten tons. Of course they travel but slowly; but as one man can work ten of these barges, with a hundred tons of coal, down to Worsley in a few hours, it is much cheaper than it could possibly be done by steam and railway. The canal has no room for oars or paddles, as a boat seven or eight feet wide just about fills up all the space between wall and wall; but at different places along the route are sidings where they may pass each other. The men work them along by means of hooks driven in the wall or in the roof overhead; but when returning empty, as the boats stand high in the water, the men will sometimes lie on their backs, and, planting their feet against the roof, will push them forward by a process of ‘legging.’

All ready? Yes! So the chain that fastened us to the pier is unhooked, and we slowly drift from our moorings. A lamp is put by the prow, but no watch is set, for this tunnel acts as a speaking-tube, conveying the sound of an approaching barge a long way; and even should we be so unfortunate as to meet with a collision, it would not be very disastrous either to boat or man. And now we are fairly afloat. But where are we, drifting on without helm, compass, or chart? There are no ‘bells’ struck here; no sails swelling in the breeze or flapping in the calm; no sailor up aloft, and no helmsman’s voice answering ‘West-nor-west, sir.’ Where are we? Is that old myth that used to make us smile a sober fact, and is this the Styx, that dark ferry across which the spirits of the departed pass onward bound? And is that old Charon yonder, sitting near the prow, while these his servants work the boat across? Slowly and silently we go, pushed along by six willing hands. We hear no voice from the world above; all is still as death, save the sound of our own voices, or the occasional drip, drip of falling water, or the quiet tread

of our boatmen as they march back and forward from stern to prow, and prow to stern. Now our captain calls a halt, and lifting our lamps to the roof above us, we find it all frescoed by Nature's own pencil. Fast bedded in the rocks are fossilised ferns, fronds and stem so exquisitely traced you could almost fancy you saw them waving in the playful gusts of a summer, long, long ago. How marvellous! that they should now be here, two hundred and forty feet below the surface! When were they embalmed in these rocks? and how? But history and science both are dumb—they cannot read for us this hand-writing on the wall. So we pass on beneath our triumphal arch, with its festoons hung up ages and ages ago, thinking as we go of the thousands of buried secrets that Nature keeps so well; and thinking, too, how much we believe, but how little we really *know*.

Presently we come to a canvas 'screen,' that hangs across our path, for the purpose of sending the air-currents up some branch canal. Down go our heads, while one of our guides lifts up the sheet, and then drops it down behind us. But what is this before us? for our narrow sheet of water suddenly widens, and the roof rises proportionately. Isaiah would, perhaps, have called it 'a place of broad streams,' and he might have added, that 'no galley with oars should pass that way;' but the navigators of these subterranean waters call it a 'pillar.' It is, in railway parlance, a junction, and that cave's mouth yonder is the outlet for another canal that sweeps round by Water Gate and Deane Moor, several miles away. It takes its name from the *post* that is fastened at the extreme corner, in which is a ring by which the boats may be tacked about at right angles.

Leaving our open sea behind us, we drift slowly onwards through our culvert. Now the rock vanishes, and instead of that, we have a wall and arch of brickwork on each side and above us. The canal here passes through a soft, shaly substance the workmen call 'metal,' which, though tolerably hard in its native bed, soon crumbles upon exposure to the air. Good old Roger, who had spent twenty years in these excavations, said: 'I have worked there, sir, when the water has dropped so, that in a quarter of an hour I was as drenched as if I had been ducked in the river. But when we were working in the rock, I could only drill for my day's work a couple of holes thirty inches deep.' He said that at one time he was working just underneath a mill; and though he was eighty yards below it, he could distinctly hear the vibrations of its engine, and thus knew when to stop for breakfast or dinner.

At different places along the route are cloughs, or 'clows,' as they call them, which serve the double purpose of cleansing the canal and assisting in the navigation of the boats. There is a slight fall all the way down to Worsley; and as the canal drains the mines, it is well supplied with water. The clough is a kind of flood-gate, rising some five inches above the water, and causing the waters in the upper reaches, as they accumulate, to stand on a higher level than those below. When the full boats are passing down—and sometimes there will be a hundred fastened together, reaching a full mile, and carrying nearly a thousand tons of coal—the clough is hoisted so that they can pass under it, and the waters rushing forward to find

their level, carry forward with a swing this black flotilla.

Still on we go, for our voyage is not ended yet; and through the intense darkness no lighthouse beckons us forward to an anchorage. 'Buckley Lane,' sings out our pilot, as we emerge into a broad water; and in the glimmer of our seven lamps, we see the siding where the barges are moored while the coals are shot down the trough yonder. But Buckley Lane is left behind, and now we have reached another siding; and as the morning is nearly gone, and our carriage is waiting for us atop, we step ashore. Scrambling up a steep incline, we soon reach the shaft, and glad are we to see again a gleam of daylight from the world above. So, stepping into the cage, four of us—for the cages are much smaller than where we went down—the signal is given, and we are hoisted up 'to bank;' and once again we feel the solid earth under our feet, and see the cloudless heavens smiling all around us. For a moment we felt confused, like doves thrown up in a strange country, but we soon sighted familiar objects and recognised the old landmarks. 'Why, that is Rivington Pike over yonder; and this is Dixon Green, with the coke-ovens just at our feet, smoky and hot as ever!'

AÉRONAUTICAL MACHINES.

IF the fabulous stories of antiquity could be credited, it might be believed that a method of navigating the air was known to the ancients. The aeronautic flight of the Cretan philosopher, and the luckless fate of his son in the Icarian Sea, is a tale well known to all school-boys. Strabo tells of a people of Scythia who had a method of elevating themselves in the air by means of smoke, although he does not mention in what manner, or whether by the intervention of any mechanical contrivance. Roger Bacon alludes to a flying-machine, although he confesses that he has not seen it, and seems to have known little of it beyond the inventor's name. The first *historical* flying experiment was made in Scotland, by an Italian friar, whom James IV. had made prior of Tongland. The man, who was a great favourite of the king's, from his presumed scientific attainments, and his supposed successes in alchemy, was commonly believed to be in league with 'Auld Hornie.' Thinking that he had discovered a method of flying through the air, the prior appointed a certain day, in 1510, for an aerial ascension, and invited the king and his court to witness the feat. At the appointed time, the Italian, bedecked with an enormous pair of wings, ascended one of the battlements of Stirling Castle, and in the presence of King James and his court, spread his plumes, and vaulted into the air. Unfortunately for the prior's reputation, the experiment was a complete failure. Amid the laughter and derision of the whole assembly, the would-be aeronaut came tumbling headlong down; and although a manure-heap luckily saved his neck, his thigh-bone was broken. As is invariably the case, the hapless experimentalist had an excuse for his non-success; it was to be attributed, he asserted, to the fact that his wings included some feathers from common fowls, instead of having been all from eagles and other noble birds!

In 1617, unwarned by this disaster, a monk of Tübingen manufactured for himself wings of

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parchment, and leaped with them into the air from a high tower: he fell to the ground, and was killed. In 1670, the first really scientific project for navigating the air was devised by Francis Lana, a Jesuit. His plan was to use globes made of exceedingly attenuated metal, the interior of which was exhausted of the air. The specific gravity of these globes being much less than that of the surrounding atmosphere, they must necessarily rise. Upon this hint one of the Montgolfiers would appear to have based his experiments, although a publication, contemporary with him, asserts that he first conceived the idea of a balloon from seeing an open paper globe, into which he had accidentally let some smoke, slip from his hands, and mount into the air. Acting upon this chance experiment, he pursued his studies in that direction, until, on the 5th of June 1783, he was enabled to let off, in the presence of his townsfolk, a paper balloon of more than a hundred feet in circumference. This experiment was the first successful one ever made. The balloon's ascension was caused by the expansion of the air in it through the agency of a fire underneath. The fame of Montgolfier's discovery spread rapidly, and produced an almost incredible sensation. Everybody fancied that the navigation of the air was about to become an easy task.

On the 27th of August 1783, Messieurs Charles and Robert set off an aerostatic globe from Paris. It was twelve feet in diameter, and only weighed forty pounds. It was made of a kind of taffeta, coated with gum, and filled with an inflammable gas, obtained by the dissolution of iron filings in vitriolic acid. Estimated to have attained an elevation of twelve thousand feet, it descended, after a voyage of only three-quarters of an hour, at Gonesse, a village about twelve miles from Paris. Other and more daring experiments followed, until, on September 19 of the same year, the Montgolfiers started a balloon weighing seven hundred pounds, to the neck of which was suspended a cage, carrying the first living voyagers that had yet travelled the air, in the shape of a sheep and two fowls. The success of this journey tempted its projectors into a still more hazardous experiment, and on the 21st of the following November, a balloon was sent off from Paris, to which was appended a car, containing two human beings, the Marquis d'Arlandes, and M. Pilâtre de Rozier. The aerial navigators soon disappeared from the sight of the anxious spectators, and after a voyage of twenty-five minutes' duration, descended in the open country, several miles from the city. Their balloon was raised by means of rarefied air, created by a stove-fire carried in the car, and fed by the voyagers, from time to time, with straw. The machine was seventy feet high, and forty-six feet in diameter; it contained sixty thousand cubic feet of air, and weighed (with all its contents) between sixteen and seventeen hundred-weight. The success of this experiment was deemed so marvellous, that a report of it was drawn up on the spot, and signed by Franklin and several notabilities who were present.

On the 2d of December following, a still more remarkable aerial journey was performed by Messieurs Charles and Robert, junior. They terminated their aerial journey without any mishap; and from his success, M. Charles was led to conceive, as he himself says, 'perhaps a little too hastily,' the idea of being able to steer one's course through the air. This idea, the unsolved problem

of aerial navigation, was at once caught at by the public, and on the very day of the last-named ascent, the Lyon Academy offered a prize of twelve hundred *livres* for the best dissertation on this subject: 'To find the most certain and most simple method of directing the Air Balloon horizontally and at pleasure.' To accomplish this feat is what the empirical are still striving at.

Whilst these really scientific experiments were going forward in France, a Mr Miller was exhibiting in London a *soi-disant* flying-machine, made in the form of a West Indian crow, with wings acted upon by mechanical power, 'in a perfect imitation of nature.' The turning of a winch gave motion to a small wheel, which then set in action other wheels to the right and left, and gave play to the two wings. 'The person who turns this winch,' says a contemporary of its inventor, 'being seated at the aerial helm, guides, at the same time, a fine spreading tail or rudder, which may be moved with ease (as may the wings) in any direction, perpendicular, horizontal, or oblique. The wings, the pinions of which are formed of steel, so finely tempered by an invention of the ingenious artist that a file will not touch them, are at present covered with crimson silk; but when brought into action, will be covered with the strongest gummed silk. The whole machine weighs five hundred pounds, and will carry three hundred. The artist has been employed upon it many years, at a very considerable expense; for which reason it will not take its flight till a subscription, now going on, to reward the artist for his skill and labour is in sufficient forwardness.' This was in 1784; and up till the present time Mr Miller does not appear to have 'raised the wind' sufficiently to set this machine into motion.

The success of the Montgolfiers and others had the effect of bringing many new competitors into the field. By the end of 1784, no less than twenty-eight voyages of aerostatic machines carrying human freights are recorded, of which the most interesting is that of Mr Tytler of Edinburgh, who ascended on the 27th of August of that year in a basket appended to a balloon, and travelled for about half a mile. To him belongs the honour of being the first aerial navigator in Great Britain. Most of these early aeronauts attempted to propel or guide their balloons with wings or oars of various kinds, and although these schemes were necessarily failures, their inventors invariably declared that they were successes. M. Blanchard, who subsequently, in 1810, crossed the English Channel, positively affirmed, in 1784, that he was enabled to guide his balloon by means of the two pair of large wings or sails which were attached to the car. In his account of his third aerial journey, made with M. Boby, in the latter year, he remarks that, when preparing to descend, 'we observed a large number of peasants running towards us, and, as it was impossible to know their intention, we again took flight, and ascended to nearly twelve hundred feet. My wings alone produced this effect, and with great ease. . . . A slight motion enabled us to ascend or descend at pleasure.' Before the discovery of ballooning, M. Blanchard had already made himself notorious by the manufacture of a machine for flying. He tried the invention in Paris, but unsuccessfully, although it is alleged that he raised himself a short distance from the earth with it. Not yet discouraged, 'he

made a second experiment,' quaintly records a contemporary, 'by sending off a criminal in the machine from the top of the church of Notre-Dame at Paris.' The criminal, who was condemned to death, was offered his liberty if the experiment succeeded, and, avers our authority, *it was successful*. M. Blanchard then built a flying-boat to carry the despatches for the French government from Brest to Paris; but this project failed to answer his expectations, and it was not until after the balloon exploits of Messieurs Charles and Robert, that he learned how to traverse the air. He must have been somewhat of a charlatan; and his repeated declarations that he directed his balloon at will, prevents us putting much faith in his amusing accounts of his aerial adventures.

The rarefied air which the Montgolfiers made use of was soon exchanged by later balloonists for hydrogen gas: being the lightest gas procurable, it was deemed the best for balloon-navigation, but the difficulty was in finding any suitable substance sufficiently impervious to its escape. Oiled silk, which was generally used, could not retain it; and it was not until Mr Green introduced coal-gas, or carburetted hydrogen, into his balloons, that this great obstacle was overcome. All experiments to apply machinery to direct balloons, and to overcome the currents of air, have signally failed. All these machines are at the mercy of the winds. The muscular power of birds proves conclusively that the strength required to move in the air, or to fly, is so great, as compared with the size of the bird, that no machine could be built that could carry, suspended in the air, machinery enough to propel it.

POISONOUS PAPER-HANGINGS.

Dr Hamberg, of Stockholm, has made some interesting chemical investigations relating to the character of the atmosphere in apartments having the walls covered with papers which contain arsenical pigments. The results of these researches are published in a recent number of the *Pharmaceutical Journal*. The paper of the room in which the experiments were conducted had a light green ground, with an ornamental pattern of brownish-yellow colour; this yellow was probably derived from an ochre, but the green resembled Schweinfurt green, and was strongly arsenical. An arrangement was made for drawing a current of air through a series of U-shaped and bulbed tubes, suspended on the wall. The passage of air was continued from July 16 to August 16, 1873; and it was calculated that during this time about 2,160,000 cubic centimetres of air had traversed the system of tubes. Some of the tubes had been plugged with cotton-wool, whilst others contained a solution of nitrate of silver, and at the termination of the experiment the contents of the tubes were separately examined. The results shewed that there had been an arsenical exhalation. It is only fair to state that none of the family residing in the house suffered any marked injury to health, although Dr Hamberg informs us that after sleeping in a room by the side of the apartment in which the experiments were made, and with the door open, he frequently experienced, on the following morning, a sense of heaviness in the head and a general feeling of weariness.—*Athenæum*.

SEPTEMBER.

INNUMEROUS chills of Winter smite the air;
The fogs rise yellow with the frosty morn;
And, over trampled fields of heaped-up corn,
The rooks sail slowly through the rainy glare.
Only the singing sycamores are bare,
For still the holly, beaded thick with blood,
Flashes a lurid brightness through the wood;
The trailing blossom twinkles from the hedge;

And, from the ivy's hood,
The linnet shrills, at times, an antique tune;
Shy moor-hens grate amid the heath and sedge;
Whilst from the pallid amethyst of noon,
Stares the half-circle of the faded moon.

Deep in the west—a reeling precipice—
Tower the barred clouds, in ever-breasting ranks,
With silent lightnings hovering on their flanks,
Mixed with the windy portents of the skies;
Dark peak to darker peaks of storm replies.
Hourly the meadows and the stubble-fields,
Which shone, awhile, like green and golden shields,
Grow black within the various coloured dusk;

The day wanes pale and yields.
The scared sheep huddle near the sheltering cote,
Up from the pastures comes the smell of musk;
The thistle-downs apast the lattice float,
And dumb is the brown wren's reluctant note.

Now shall the puce-apparelled iris close;
Now by the mosses, on the freshet's brink,
Shall pimpernel and daisy cease to wink,
And from the standard hang the wasted rose.
No more the honeysuckle breathes and glows
On walls that take the freshness of the sun—
Red gables with the frank vine overrun,
Or soft protrusions of nest-riddled eaves,

Where late the grape waxed blue;
The bee broods silent on the heliotrope,
Our orchard paths are red with burnt-up leaves;
Fast clings the spider to his airy rope,
And spans the South the cloudy bow of hope.

Yet, grieve not that the sun and swallows range,
That lilies sicken—birds forget to sing—
That the lorn nightingale, with folded wing,
Flutes not o' nights within the elm-girt grange.
Heaven's will is oft fulfilled in wisest change:
No cloud but has its mission; not a wind,
From Earth's four fixed corners unconfined,
But blows as is ordained—not as it lists—

And serves some purpose kind:
For there is wisdom in the laggard day,
And teeming fatness in the leaguering mists—
A star of promise in the densest gray,
And in dead flowers rathe coronals for May.

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